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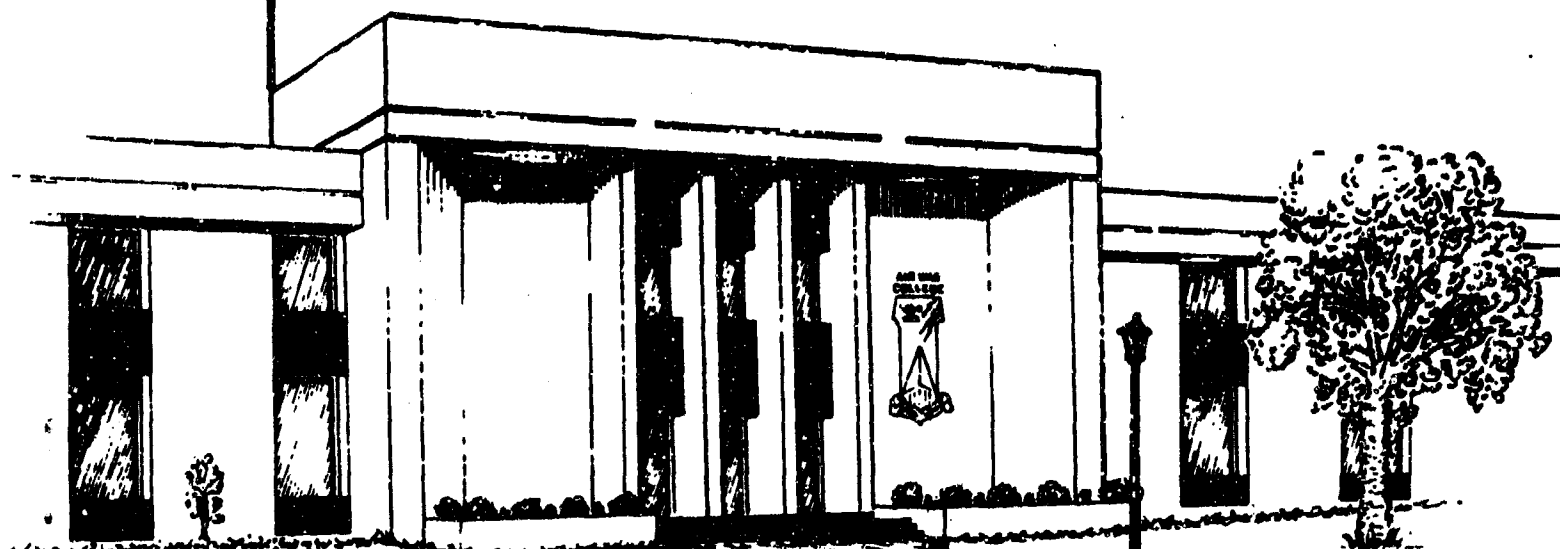
ARMY AVIATION AND AIR COMBAT:
EVOLUTIONARY OR REVOLUTIONARY?

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1988



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AIR UNIVERSITY
UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

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ARMY AVIATION AND AIR COMBAT:
EVOLUTIONARY OR REVOLUTIONARY?

by

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A RESEARCH REPORT SUBMITTED TO THE FACULTY
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FULFILLMENT OF THE RESEARCH
REQUIREMENT

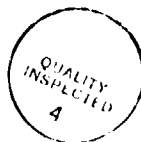
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MAXWELL AIR FORCE BASE, ALABAMA

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AIR WAR COLLEGE RESEARCH REPORT ABSTRACT

TITLE: ARMY AVIATION AND AIR COMBAT: EVOLUTIONARY
OR REVOLUTIONARY?

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Examines from both a historical and doctrinal perspective the use of Army Aviation resources to fight in an air-to-air combat role. A description of the threat describes Soviet helicopter design initiatives and provides an insight as to how the Soviets envision employing helicopters in an air combat role. A historical review of Army Aviation's development details how aviation has been integrated into the Army's combined arms team dedicated to winning the ground war. The use of Army assets in counterair operations is mandated by joint doctrine and the Army is responsible for developing a capability to implement that doctrine. The Army's air defense doctrine incorporates the concept of combined arms and Army Aviation has the ability to contribute as an integral member of the combined arms team. This paper acknowledges that the Army's counterair mission is doctrinally legitimate; however, the suggestion is made that the use of Army aircraft in an air combat role is a revolutionary departure from the historical evolution of Army Aviation.

BIOGRAPHICAL SKETCH

Lieutenant Colonel Danny C. Cox is a Master Aviator who has had consecutive assignments with cavalry squadrons. He served as an aero scout platoon leader in South Vietnam and commanded an armored cavalry troop, a headquarters troop, and an air cavalry troop. He served as an air cavalry squadron commander in the 101st Airborne Division (Air Assault) during 1984-86. He is an Honor Graduate of the Army's Command and General Staff College at Fort Leavenworth, Kansas. Lieutenant Colonel Cox is a graduate of the Air War College, class of 1988.

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INTRODUCTION

ARMY AVIATION AND AIR COMBAT:
EVOLUTIONARY OR REVOLUTIONARY?

In 1983, Army Aviation was approved as a separate branch of the Army and adopted a branch insignia that closely resembled that of the old Army Air Corps. On 12 October, 1984, Field Manual 1-107, Air-To-Air Combat, was published. Because of the Army's historical aviation experiences and these recent developments, soldiers may wonder if Army Aviation is committed to the combined arms team, or whether Aviation Branch is hearing a drummer out of the past.

While the U.S. Army has acknowledged the combat potential of aviation, the Soviets have also recognized the fighting capabilities of the helicopter and have introduced large numbers of tank killing attack helicopters into their force structure. In addition to attack helicopters, it now appears as if the Soviets are developing a specialized helicopter that has been optimized for the air-to-air role. The Army finds itself facing a formidable threat for which there is no historical precedence. In addition to the threat having changed, U.S. Joint doctrine concerning counterair operations has also changed. These changes have put the Army

in the counterair business and the Army's combined arms team will be used to eliminate the helicopter threat.

The U.S. Army, "of all the services", is pivotal in winning the ground war and the Army's doctrine and resources are applied to accomplish that mission. Army Aviation is a resource that is integrated with the other arms of the combined arms team to create a synergism of combat power whose sum exceeds the contribution of any single arm making up the team. The traditional role of Army Aviation has been as a combat, combat support, and combat service support resource directly responsive to the ground commander, whose mission is to fight the ground battle. The history of aviation in the Army and the history of Army Aviation are related but different. Aviation in the Army evolved into air power which led to a separate Air Force and an integral part of the missions of air power is the counterair mission. Army Aviation, on the other hand, stayed with the ground commander and was committed to fighting the ground battle. Air Defense Artillery assets have represented the Army's counterair capability. To use Army Aviation in the counterair role is a revolutionary change in the roles and missions of Army aircraft and may be construed as the antithesis of the traditional Army Aviation mission.

The Soviets are not restricted to the Army's

interpretation of aviation history, and consequently the Soviet helicopter threat transcends the traditional roles and missions of the services and the missions of the branches of the Army. The decision that Army Aviation will engage in air-to-air combat to protect itself, and to protect other members of the combined arms team has been made because of the threat. The thesis of this paper is that using aviation as an air-to-air combat force is a revolutionary departure from the traditional role of Army Aviation. Army Aviation is fundamentally a component of the Land portion of AirLand Battle doctrine; however, when an operational air-to-air capability is achieved, the Army will own a part of the AIR of its own AirLand Battle doctrine. It is important to acknowledge that from a historical perspective, air combat for Army Aviation is not evolutionary, but revolutionary.

This paper will discuss the Soviet threat, the historical evolution of Army Aviation, the doctrinal and operational concepts of Army Aviation air combat, and the implication of the effect that future Army aviation systems will have on the ground war. The purpose of the paper is to examine, from a historical perspective, recent decisions by the Army to field an air-to-air capability. The paper will conclude with an assessment of these decisions.

CHAPTER 2

THE THREAT

The last two decades have seen significant changes in Soviet helicopter doctrine that reflects extensive analysis of events since WWII. The United States helicopter experiences in Vietnam and helicopter operations in the 1973 Middle East War are two events that provided an analytical base from which the Soviets have concluded that the helicopter has attributes that will contribute to the future battlefield. Soviet analysis is reflected in public statements that the helicopter will be a major contributor to the success of the the next battle "...helicopters have proved most effective as a versatile fire system highly superior to other combat vehicles as regards observation, maneuverability, and choice of time and place of delivering a blow. Plans to design future combat helicopters envisage further enhancements of their fighting power, survivability and ability to operate in any weather (1:18)." This comment by Colonel Belov (a Soviet officer and writer) in 1979 precisely sets the stage for the events that have taken place in Soviet military helicopter development which indicate that rotary wing aircraft have become an indispensable item of military hardware (2:241).

The hardware developments that occurred during the

1970's, and changes in the character of Soviet land warfare, increased the role of the helicopter. Major doctrinal developments saw the introduction of attack and assault helicopters into frontal aviation force structure and more recently into mechanized and armored divisions. These significant changes solidify the precept that the "...Soviet Army no longer thinks of the all-important land battle in purely ground terms - it is now a three-dimensional battle, in which the integrated use of the air element is essential for success. The air element in question is, at the tactical level, provided primarily by the helicopter (3:44)." There can be no question that the Soviets have studied well, for the contribution to the three dimensional tactical battlefield today is the MI-24 Hind and in the not to distant future, the MI-26 Havoc and the Hocus. These three attack helicopters are the principal air threat to the AH-64 Apache on the future battlefield and will be the focus of this discussion. However, a brief discussion of Soviet force structure changes that have occurred in the last decade is necessary to reinforce the importance of the helicopter as a fundamental element of the three dimensional battlefield.

What brought the Soviets to the conclusion that the helicopter has utility on the battlefield when their land warfare doctrine emphasized massive firepower, mobility, and survivability as fundamental underpinnings of an offensive

strategy based on momentum and maneuver? If there were one major event that may have persuaded the Soviets that the attack helicopter had utility on the battlefield, it could be argued that the United States Army Ansbach tests in 1976 (tests conducted in Europe to determine the effectiveness of attack helicopters) convinced the Soviets the the attack helicopter would be a formidable adversary. Though Soviet tacticians were debating in the mid 60's and early 70's the utility of the helicopter in support of land warfare, the spectacular results of the test showed that the attack helicopter could achieve a kill ratio of approximately 19:1 against armor. This test may have convinced the Soviets that they should look closely at this machine.

Soviet military strategy emphasized the importance of firepower, infantry, artillery and armor. However, the obvious advantages of the helicopter to reinforce soviet military theory of mobility, maneuverability, mass and surprise began to appear in Soviet open source literature (2:263). Early debate centered around the vulnerability of the helicopter to ground fire and the need for armor plating for protection. Later, however, the debate shifted to theoretical discussions concerning the most effective methods to employ the helicopter in support of the ground war (2:242). Writings by Col Belov, now General Major Belov, and others advocated the use of air mobilization, "fire strikes"

and the use of attack helicopters in support of ground forces. These new ideas contributed to the solidification of the importance of the helicopter in combined arms operations. Major combat maneuvers such as Berezina-Newman in 1979 provided a training ground for the development of employment concepts which convinced Soviet leaders that the attack helicopter was an important part of the combined arms concept. Air power, both fixed wing and rotary wing, played a major role, along with artillery, in providing the ground commander the ability to extend the battle forward of advancing ground forces (2:249). Statements by Col. M. Kinyukhin (a Soviet officer and writer) further legitimized the importance of the helicopter in Soviet doctrine. "Helicopters, equipped with diverse types of modern weapons and capable of destroying ground targets, have become an indispensable part of modern combat (1:312)". General Major M. Belov summarized the importance of the attack helicopter by stating that the success of the offensive is doubtful "... unless mass use is made of helicopters (1:316)".

To accommodate helicopter requirements on the battlefield, the Soviets initially placed their helicopter regiments in air armies at front level. Attack helicopters and combat assault helicopters supported ground commanders similar to other Air Force assets. However, as the Mi-24 Hind began to come into the force structure, a major

doctrinal change began to occur in the area of close air support of ground forces. Commanders found that the Hind was highly responsive to mechanized and armored forces, and enhanced mobility and flexibility by being able to deliver bombs, rockets, anti-tank missiles and machine gun fire. In essence the Hind significantly increased the precision attack capability of air power and provided responsive and accurate close support to ground forces as they pressed forward in the attack (2:145). As ground force commanders became accustomed to responsive attack helicopter close support, another force structure change took place that pushed helicopter squadrons down to division level. Currently, mechanized and armored divisions have 18 to 24 helicopters organic to the division, of which 6 to 8 are Hinds. Current force structure places attack helicopters at division level and combined arms army level. Heavy lift helicopters at frontal level provide helicopter support for the airmobile assault brigade.

The purpose of this discussion thus far is to provide an appreciation for the importance of helicopters in Soviet doctrine. Also, this discussion reinforces the point that helicopters have become increasingly important on the battlefield and emphasizes that helicopters have been given a greater tactical role in support of ground forces (3:1029).

What then is the specific air threat to Army Aviation as

a maneuver force on the battlefield? The air threat is articulated extremely well in the coordinating draft of the revised Army Field Manual 1-107, "Air Combat Maneuvers" which replaces FM 1-107, "Air-To-Air Combat" distributed in October 1984. In the coordinating draft, it states that "The air threat in air combat operations consists of armed helicopters, fixed-wing aircraft, and unmanned aerial vehicles and drones (4:2-1)". The helicopter air threat is the focus of this discussion, therefore, fixed wing aircraft, unmanned aerial vehicles and drones will not be addressed.

Relevant to the discussion is the fact that the Soviets have added attack helicopters in an antihelicopter role to their air defense capability. Here again, open source literature reflects that the Soviets are serious by stating "it becomes vital to get a weapon which could compete with the helicopter in respect of combat power, tactical possibilities etc. Logic and historical experience suggests that such a weapon is the helicopter itself. Just as tanks have always been the most effective weapons against tanks, helicopters are the most efficacious means of fighting helicopters (3:18)". This theoretical and doctrinal statement is, if fact, being transformed into reality by changes that appear on the MI-24 Hind F and expected armament capabilities on the MI-28 Havoc and the Hocus. These significant hardware changes require a more detailed

examination. Because of the threat, Army Aviation is gaining an air-to-air combat mission that is without historical precedence.

The Hind is referred to by many as a second generation Soviet attack helicopter that began its life as a heavily armed and armored transport helicopter capable of carrying from 6 to 8 combat troops. The first version, the Hind A was observed in 1974. This aircraft had a large crew compartment to accommodate a crew of four, a 12.7mm machinegun in the nose and various additional armament that could be hung on stubby wings with six hard points. The Hind A was capable of carrying 57mm rocket pods, chemical or conventional bombs and four AT-2 Swatter anti-tank missiles on the wing tip pylons. The experimental version of the helicopter set the world speed record of 228.9mph over a 15/25km course on 21 September 1978 (5:17). It did not lack performance but it was burdened with the dual role of troop transport and armed helicopter capability as well as the large crew compartment. Major modifications were made to completely redesign the forward section of the aircraft which resulted in a heavily armored tandem cockpit configuration for a pilot and copilot and replacement of the single 12.7mm gun with a 12.7mm four barrel Gatling gun which could be used in an air-to-air or air-to-ground role. The Hind D, went into full scale production and soon began to appear in frontal aviation

units. The importance of this helicopter was quickly realized by ground commanders because of its quick responsiveness to changes in the battle and it was not tied to large airfields located well to the rear. These factors were identified rather succinctly by Sergei Sikorsky "The proliferation of the MI-24 Hind attack helicopter in the Soviet Air Force and subsequently with Warsaw Pact forces and a number of client nations signals a subtle change in the Soviet concept of close support. The helicopter role is increasing in the Soviet Frontal Aviation simply because it gives the Army commander (who is the boss) a high degree of mobility and the precision he demands of 'his' Air Force--precision even in poor weather that prevents accurate fire support from fixed-wing aircraft. In his mind the helicopter does not compete with his aircraft--it reinforces his aircraft (6:88)".

The Hind has certainly been the mainstay as the Soviet attack helicopter and has gone through significant upgrades. The E and F models which are reported to have made significant improvements in the capabilities of the the helicopter in the air to ground role by upgrading the Anti Tank Guided Missile (ATGM) to the AT-6 Spiral which is a considerable improvement over the previous ATGM capability on the Hind D. Improvements in its air combat capability have been made by the addition of a fixed twin barrel 23mm gun on

the port side of the nose in place of the turret mounted 12.7mm gun on the Hind D (5:16). This change provides a significantly increased air combat capability over the previous gun in the close in spontaneous air battle. Even more critical is the addition of an air-to-air missile on the Hind F which completely changes the nature of its capability to conduct air combat. Though the helicopter was not initially designed to conduct air combat, the inherent defensive capability and potential offensive capability of the Hind F causes concern because the Army does not have an air combat capability at this time. More importantly, these upgrades legitimize the doctrinal statements previously mentioned concerning the use of helicopters in the air-to-air role to defeat the NATO threat of the AH 64 Apache and the AH1S Cobra helicopters.

Considerable speculation exists as to how the Hind F will be used on the battlefield. Will it be used in an offensive counterair role or will it be used purely in a defensive counterair role? Another dimension to the question is to what extent will the helicopter be used against fixed wing aircraft. At this time, there are no specific answers to these questions but it is reasonable to assume that the Hind F will be used primarily in close air support of ground forces, air assault support and armed reconnaissance. A secondary mission might well be air-to-air helicopter combat.

The dual role capability of the Hind F can prevent helicopters from destroying Soviet ground forces and can prevent attack helicopters from disrupting Soviet air assault operations in the vicinity of the FLOT or in their adversaries rear area. This enhanced capability is of major concern. The Hind, affectionately referred to by Soviet ground forces as the "Shurmovik" helicopter, is a formidable aircraft that will soon be augmented by another attack helicopter, the MI-28 Havoc, which is analogous to the AH-64 Apache.

The Havoc is the follow-on attack helicopter to the Hind and will most likely have the most advanced attack helicopter capabilities that the Soviets can produce. Artist drawings of the Havoc reflect unique similarities to the AH-64 Apache. Of significance is speculation that the helicopter will also have an air combat capability using the Soviets latest technology to include millimeter wave technology for missile systems. With respect to air combat, it will have a chin turret mounted 23mm or 30mm cannon and the capability to carry 8 modified SA-14 missiles (4:A-13). This new helicopter, which is not yet in full production but is expected to be in the field in 1988, is expected to be much more maneuverable than the Hind and will have enhanced night and all weather capability, which the Soviets concede they do not have today (7:566).

Most significant to the air combat mission is the development of the Kamov Hocom helicopter which uses coaxial rotor technology. This new helicopter is said to be designed primarily for air combat against fixed wing and rotary wing aircraft and currently there is no western counterpart (8:145). Based on initial data, the Hocom will be extremely maneuverable and operate in the 190 knot airspeed range. It will have an all weather and night capability and the potential to shift the advantage in air combat towards the Soviets. There is no information in open source literature that indicates how and at what level these counterair helicopters will be located in the force structure but it would seem prudent to expect that they will be fielded at the front level initially until such quantities are produced to allow for them to be distributed to armies or even divisions. This helicopter can be expected to compliment the helicopter force rather than replace any current helicopters in the Soviet inventory. In addition, it would seem obvious that the Hocom would be linked into the air defense system as a complimentary force capable of engaging NATO helicopters conducting deep strike operations in the Soviet rear area particularly in the vicinity of the second echelon forces or operational maneuver groups (OMG).

In conclusion, the Soviets have made significant strides

in fielding a formidable helicopter force that is capable of complimenting ground force maneuver. Further, the Soviets have taken the initiative in the area of helicopter air combat by increasing the capabilities of the Hind, adding an air-to-air capability to the Havoc and in the near future, producing the first helicopter with a primary mission of air combat. These hardware realities legitimize the doctrinal changes that have been articulated in open source literature, and cause new challenges for NATO in the areas of air defense and protection for the AH-64 Apache and the AH1S Cobra on the battlefield. It's important to remember that the helicopter systems just discussed do not represent the future threat of next generation helicopters. The Hind, Havoc and the Hocus are threats that may be found on the battlefield within the next five years and potentially in sufficient numbers to tip the combat power equation in favor of the Soviets.

CHAPTER 3

ARMY AVIATION AND AIR COMBAT: A HISTORICAL PERSPECTIVE

The development of the U.S. Army's air combat capability is based on the threat, and the fielding of this capability is a result of available resources and technology. However, it is safe to say that the U.S. Army's organization and structure is the result of more than an analysis of the threat and the melding together of resources and technology. The Army is complex and dynamic and its rich and varied history has played an important part in developing the values and perceptions of its mission and how it should be organized. Where the Army has been, influences where it is today and the decisions now being made will shape the future. The prism through which the Army views the future is multifaceted and one facet in that prism is the Army's history. The history of aviation within the Army has been dynamic and colorful and certainly has influenced, and will continue to influence, the role of Army aviation as a combat force. This chapter will provide a brief history of aviation within the Army and will provide a history of Army Aviation (the difference in these two seemingly similar terms will be made clear). The purpose of this chapter is to describe the history of Army Aviation in order that it may be used to assess the Army's air combat development efforts.

The birthday of Army Aviation is officially recognized as being 6 June 1942. This is the day that the War Department was convinced by the Army to permit Field Artillery to have their own light aircraft for the purpose of detecting and adjusting artillery on targets that were not visible to ground based observers. The significance of 6 June 1942, is that aviation assets were made directly responsive to the ground commander (9:11).

The history of aviation in the Army, however, can be traced to 6 June 1861, when Professor Thadeus S. C. Lowe arrived in Washington, D.C. to demonstrate the wartime use of balloons. Professor Lowe demonstrated for President Lincoln the capabilities of balloons as aerial observation platforms in adjusting artillery. As a result of the demonstrated capabilities of the balloon, the Balloon Corps was made a part of the Army of the Potomac and Professor Lowe was named as the Chief Aeronaut and placed in charge. After the Confederates withdrew from around Washington, the Balloon Corps was placed under the Army Signal Corps to participate in future campaigns. The Signal Corps could not support the new organization and it was disbanded in June 1863. The military use of balloons by both the North and South during the Civil War consisted of successes and failures for both sides but the value of the aerial platform in the conduct of

land war was apparent to Army officers.

The Signal Corps brought back the balloon in time for the Spanish American War, and on 1 July, 1898 an Army observation balloon played a key part in the capture of San Juan Hill. After Wilbur and Orville Wright's successful invention in 1903, the Army had by 1911, five airplanes, three balloon, and six officers to fly them. The mission of aviation continued to be observation and adjustment of artillery fire. On 18 June 1914, Congress created an Aviation Section within the Signal Corps. It was during WWI that air power, by itself, gained recognition as a potentially decisive element of a nation's military power (9:21-26).

Following WWI, a movement emerged which maintained that air power had the potential to be decisive in war and that only minor cooperation with ground forces would be required. These proponents essentially believed that air power should first gain air superiority, then destroy, by strategic bombing, a nation's war producing capability. The proponents of air power were successful in generating the support in Congress to have the Air Corps created by the Air Corps Act of 2 July 1926. By 1 March 1935, the General Headquarters Air Force was created and placed under the Army General Staff, However, because of friction within the Army staff, General Headquarters Air Force was made responsible to the Chief of

the Air Corps in August 1939. All elements of the air corps, engineers, signal, and other components of the Army that made up the elements of air power, were placed under the Army Air forces, created by an Army regulation on 20 June 1941. On 9 March 1942, the War Department created "autonomous and co-equal commands within its framework: the Army Ground Forces, the Army Air Forces and the Army Services Forces (9:38).

The fighting ground Army, the Army Ground Forces, did not have an integral aviation capability. The Air Corps existed after 1942 as the chief component of the Army Air Forces. The War Department agreed that the Army Ground Forces had a requirement for aviation and authorized organic aviation as part of Field Artillery to supplement air support by providing air observation for adjusting artillery fires.

During World War II, Army aviators flew light airplanes of the Piper Cub vintage. This type of airplane did not require a great deal of logistical support and could live and operate in a field environment with the ground soldier. Army Aviation's introduction into combat occurred during the invasion of North Africa when three L-4's (light fabric covered airplanes) took off from the USS Ranger and were almost immediately fired on by most of the ships in the convoy (the convoy had been attacked earlier and the small

Army airplanes were not familiar to the sailors). Army Aviation lived and fought with the front line divisions in every theater during the war performing missions of reconnaissance, observation, and command and control. They used autobahns, wheat fields, and even school yards for runways while conducting missions as part of the Army that fought the ground war (9:119-180).

Following the war, in 1946, the Army received its first helicopters which were Bell YR-13s. In 1947 the Army Air Corps began teaching Army aviators how to fly helicopters; however, this flight instruction did not meet Army standards and in 1948 the Army began its own instruction program. In 1953 the warrant officer aviator training program started and has since been key in providing a source of highly dedicated and professional aviators (9:94-96).

The helicopter proved itself as an aircraft with tremendous versatility and great potential. It soon became obvious that the helicopter's flexibility and ability to perform many diverse functions would enable it to make a special contribution to the ground war. During the Korean War, observation and reconnaissance missions were being shared between a fleet of light airplanes and the helicopters, but it was in the field of medical evacuation that the helicopter excelled (9:180-185). Because of the

operational flexibility of the helicopter and the experiences of the Korean War, the seeds for the operational concept of "airmobility" were planted.

The airmobility concept proposed the integration of aerial vehicles organic to the Army to enhance mobility, firepower, intelligence, and command and control. On 21 August 1952, the Army took a significant step when the decision was made to form twelve helicopter battalions. Even though the aircraft at that time did not have the capability to provide the envisioned mobility, and the fact that doctrine and tactics were nonexistent, there were a few Army aviators that had a vision of the future. After Korea, the development of the armed helicopter began when Army aviators experimented with mounting machine guns on their H-13s. Also, during the mid and late fifties, organic Army Aviation was beginning to be recognized as a means by which combat operations could be conducted over areas of great depth and breath such as might be required on a nuclear battlefield (10:4).

The early development of airmobility may have been based on the assumption that its use was applicable to the nuclear battlefield, but it was during an entirely different type of conflict that the airmobility concept matured. The United States aircraft carrier USS Card docked in South Vietnam on

11 December 1961, with 32 U.S. Army H-21 helicopters and 400 men aboard. The significance of this event was that it represented the first major symbol of American military power in Vietnam and it represented the beginning of a new era of airmobility for the Army (10:3).

It was during 1961 that Secretary of Defense McNamara prodded the Army's leadership to move more aggressively in its aviation procurement initiatives. During that same year, Secretary McNamara expressed his concerns that aviation initiatives were spread over too many years and that the Army was too conservative. In the Spring of 1962, he sent a memo to the Secretary of the Army directing a reexamination of what was needed for the Army to gain the maximum mobility on the battlefield that was within the scope of current technology (10:17-18). Soldiers within the Army had the vision of airmobility but the Army as an institution was slow to embrace the concept.

As a result of Secretary McNamara's interest, General Howze, Commanding General of XVIII Airborne Corps, was appointed as president of a board to conduct a reexamination of the role of Army aviation and of Army aircraft requirements. The most significant activity of the Howze Board was the investigation, testing, and evaluation of the organization and operational concepts of airmobility. The

most revolutionary finding of the board was the recommendation for the airmobile division. This type of division was to have 459 aircraft and was designed to be able to lift one third of its infantry at one time. The artillery of the division was to be lifted by CH-47 cargo helicopters. Instead of tanks, the airmobile division was to have twenty-four armed mohawks (a twin engine airplane) and 36 UH-1 Huey helicopters armed with 2.75 inch rockets. In addition to the airmobile division, the Howze Board recommended the organization of an air combat brigade. The mission of the brigade was a traditional cavalry mission of reconnaissance and security, and mobility for the brigade was to be provided by 315 aircraft of which 144 were to be attack helicopters (10:20-24).

The Army had been experimenting with the armed helicopter since the mid 1950s when machineguns were mounted on H-13s. During the early years of Vietnam, the need arose for an attack helicopter and through a system of trial and error, just about every helicopter in the inventory was used as an attack helicopter. In addition, the Army was sensitive to criticism for not striving to maximize the operational potential of its emerging airmobility doctrine. During this same period, Bell Helicopter was conducting its own research and development program using basic UH-1 technology to develop the AH-1 Cobra attack helicopter. Because of the

immediate requirement in Vietnam for an attack helicopter, the Army's sensitivity to Department of Defense criticism, and the availability of the AH-1, the decision was made to procure the Cobra as the Army's first attack helicopter. The AH-1 Cobra arrived in Vietnam in September, 1967 (10:145).

On 16 June 1968, a U.S. radar station reported ten unidentified helicopters located just south of the demilitarized zone separating North and South Vietnam. Throughout the nights of 16 and 17 June, numerous reports were received of enemy helicopters operating in the DMZ. As a result of the sightings, 7th Air Force dispatched a message stating that all aircraft, fixed and rotary wing, operating in I Corps would be under positive control of the Air Force radar station. This message, if complied with, would have brought all ground operations in I Corps to a halt including emergency resupply and medical evacuation. At the time, it was pointed out to the Air force that the AH-1 might be the best way to handle the helicopter threat. Eventually, it was concluded that the enemy helicopter threat was not real and the requirement for positive control of all aircraft was dropped. The Army pointed out to the Air Force that they had no command relationship over Army aviation operations. Further, if the Army had complied with the requirement for positive control, the system could not have handled the volume of air traffic that would have been created by 1,000

helicopters operating in I Corps (10:193).

During Vietnam, the 1st Cavalry Division and the 101st Airborne Division were both converted to airmobile divisions and their organizations were close to that which was recommended by the Howze Board (except the Mohawk airplane was never standardized as a close air support aircraft). The 1st Cavalry Division (Airmobile), the 101st Airborne Division (Airmobile), and the 1st Aviation Brigade, plus other Army Aviation units made a significant contribution to the mobility, firepower, intelligence gathering efforts, and command and control of Army forces in Vietnam.

Another era of the Vietnam war and another chapter of Army Aviation was about to be written starting in the fall of 1970. The North Vietnamese had intensified pressure in the northern part of South Vietnam and U.S. intelligence revealed that their objectives were a multi-divisional attack against the cities of Quang Tri and Hue, using the A Shau Valley as an avenue of approach into Hue. To counter the North Vietnamese buildup in Laos and the A Shau Valley, General Creighton Abrams made the decision to attack into Laos with the South Vietnamese Army on the ground supported by the U.S. Army providing the air mobility, firepower, intelligence gathering, and command and control (11:14-15).

It was a conventional war along the Ho Chi Minh Trail in Laos which challenged Army Aviation with the most dense concentration of antiaircraft fire of the war, and the South Vietnamese Army with the bloodiest sustained ground combat since the Tet Offensive in 1968. The United States committed more air and artillery support to this single battle, LAMSON 719, than at any other time during the war. Also, more helicopters were shot down during the LAMSON 719 operation than at any other comparable time during the war. For the first time in combat, AH-1G Cobras engaged and destroyed enemy armor. The battle of LAMSON 719 was not a low intensity conflict, but rather an attack against an entrenched, well equipped, and numerically superior force. Even though there were significant helicopter losses, all of the operational objectives were achieved and it is generally concluded that if it had not been for the capability provided by Army Aviation (and the contributions of the Air Force and Marines) this operation would never had been even planned (12:6).

Following Vietnam, the 1st Cavalry Division was converted into an Armored Division, and the 101st Airborne Division (Airmobile) retained its aviation structure but was renamed the 101st Airborne Division (Air Assault). Numerous other changes took place in Army Aviation. Based on the threat, Army aviators changed their flight environment to terrain flight. The Air Cavalry Combat Brigade was tested and

the 6th Cavalry Brigade grew out of those tests to become Army Aviation's rapid deployment tank killing brigade. The AH-1G Cobra was modified to become the AH-1S TOW firing tank killer, and the UH-1 is being replaced by the UH-60, a twin engine, 180 knot, troop carrying assault helicopter. With the fielding of night vision devices, darkness has become the environment of choice for Army Aviation. The most significant contributor to modern ground warfare may be the AH-64 Apache attack helicopter that is now being fielded. Under a recent reorganization, every division of the Army will have an aviation brigade. However, the most significant recent event for Army Aviation has been the designation of aviation as a branch of the Army.

On 13 April 1983, the last milestone was achieved when the Secretary of the Army, John O. Marsh, approved Army Aviation as a separate branch of the Army. The names of new heroes must now be added to our history. Meyer, Otis, and Galvin, all nonaviators, believed in Aviation and made it possible for the branch to be formed. West, Harrison, and Estes developed the implementation plan and charted our initial course. Maddox and Parker have commanded the Army Aviation Center of excellence during this, our most challenging era. We pour champagne to salute those who came before and those who, today lead us forward as the newest, strongest and swiftest branch of the Army....Army Aviation has flown "Above The Best" through three wars. It always provided ground commanders with the air assault support needed to win in combat. Now, with branch status, we stand on the threshold of unlimited potential in the development of Army Aviation tactics. We'll still be flying Above The Best, but now we'll also be fighting shoulder-to-shoulder as a full combat arms partner in the finest Army in the world (13:21).

The above quote from a ceremony reflects Army Aviation's

proud heritage and the importance that is placed by Army Aviators on being recognized as members of the Army's combined arms team. The history provided thus far, describes how Army Aviation evolved to become a component of the ground war. The evolution of Army Aviation proceeded down a colorful and somewhat bumpy road that eventually led to a fork. The proponents of air power went in one direction and the small group of aviators that was left, stood on a narrow path that led to an uncertain future. Brigadier General, Retired John C. Bahsen, describes the pilots in the Army on 6 June 1942;

Pilots left to the Army by that agreement, most of them artillery officers, had their own set of "second class" wings, known as liaison pilot wings, and were generally organic to the artillery or to a specific headquarters (14:62).

Those aviators wearing "second class" wings have evolved into full members of the combined arms team.

Army Aviations roots are in the mud with the foot soldier. To use Army Aviation in air combat (to fight air-to-air) represents a revolutionary departure from the traditional role of contributing to winning the ground war. It is the battle on the ground that ultimately must be victorious. History teaches that a combined arms team which includes aviation is the most powerful of modern ground forces. The challenge for Army Aviation is to meet the threat along with the other members of the combined arms team.

CHAPTER 4

OPERATIONAL CONCEPT FOR COMBINED ARMS AIR DEFENSE

The discussion of the Soviet threat and the developments in doctrine and hardware that have evolved over the last twenty years clearly indicate that the Soviets have fully integrated the helicopter into their offensive operations to insure that ground forces can maintain the momentum of the attack and accomplish their objectives. Sufficient evidence also indicates that Soviet attack helicopters will be equipped with an air-to-air capability to counter the NATO attack helicopter and fixed wing close air support aircraft that are a real threat to the successful accomplishment of their ground war. Further, the fact that the Soviets are in the throgs of producing an armed helicopter specifically designed for air-to-air brings to the battlefield a significant threat for which there is no western counterpart. These significant changes in Soviet doctrine and capability along with the Joint Chiefs of Staff publication, JCS Pub 26, Joint Doctrine for Theater Counterair Operations, have caused the Army to reexamine and expand its air defense contribution to the theater counterair campaign.

The purpose of this chapter is to examine the Army's role in counterair operations as outlined in JCS Pub 26 and examine the Army air defense operational concept paying

particular attention to the role Army Aviation will play in execution of the Army's combined arms air defense doctrine. Though the operational concept is in the developmental stages, there is sufficient work completed to provide a reasonable framework for analysis, keeping in mind that there inevitably will be some changes before the final concept is published as the Army position.

JCS Pub 26 provides the doctrinal framework for theater counterair operations and is applicable to unified commands, their subordinate commands and those joint task forces that may be established to conduct specific missions directed by the NCA (20:1-1). The doctrine specifies responsibilities of the air component commander for the theater counterair campaign and specifies the contributions of the ground component commander to the overall theater effort. The publication states that

Normally the joint force air component commander will be the Service component commander who has the preponderance of air assets to be used and the ability to assume that responsibility. The tactical and strategic forces may be committed to counterair operations as well as other contributing forces such as SDF, elements of Army, Navy, Air Force and Marine Aviation, surface air defense, and EW forces, remain under the command of their respective components (15:111-4).

This command relationship statement establishes that ground component commanders of Corps and below are responsible for the conduct of counterair operations within their areas of

operations and Army Aviation, specifically the helicopter force, will contribute to the counterair campaign as a member of the ground maneuver force.

In order to provide a framework for discussion, some definitions are required to understand the terminology used in JCS Pub 26. Counterair operations are

Air operations conducted to attain and maintain a desired degree of air superiority by the destruction or neutralization of enemy forces. Counterair operations include such measures as the use of interceptors, bombers, antiaircraft guns, surface-to-air missiles, electronic countermeasures, and destruction of the air or missile threat both before and after it is launched. Other measures that are taken to minimize the effects to hostile air actions are cover and concealment, dispersion, deception (including electronic), and mobility. Both offensive and defensive are involved. The former range throughout enemy territory and are normally conducted at the initiative of friendly forces. The latter are normally conducted near or over friendly forces and are generally reactive to the initiative of the enemy air forces (15:B4).

This all encompassing definition is extremely important because it identifies the two categories (offensive counterair and defensive counterair) and where on the battlefield these two operations will generally take place. Specifically, offensive counterair (OCA) operations are conducted to destroy, disrupt, or limit enemy air power as close to its source as possible. Defensive counterair (DCA) is the protection of assets from air attack through both defense and destruction of the enemy's capacity to attack

(15:B5). With respect to special relationships on the battlefield, OCA is generally conducted forward of the Forward Line of Troops (FLOT) and DCA is conducted to the rear of the FLOT. A brief discussion of OCA and DCA will describe where helicopter forces will play a role under the control of the ground force commander.

Offensive counterair operations as discussed in JCS Pub 26 is primarily an Air Force mission to destroy enemy targets forward of the FLOT. The OCA mission at times may become such a critical mission that, if sufficient resources are not apportioned to this mission, the success of the ground campaign may well be in jeopardy. In fact, JCS Pub 26 recognizes this fact by stating "Whenever hostile air power has the potential to threaten friendly operations, OCA operations must be considered for a major role in tactical operations" (15:1V-4). This statement implies that the modern battlefield may require the joint force commander to apportion a greater amount of his air assets to attack follow-on forces as part of deep operations before they are committed to the main battle area. These targets will be attacked both in the air and on the ground and as close to their source as feasible. With respect to aerial vehicles, JCS Pub 26 states "This category may include enemy fixed-wing aircraft, helicopters, RPV's, and cruise missiles" (15:1V-1).

The joint publication also recognizes that all forces have a capability to conduct DCA within the scope and spirit of the definition by stating "...therefore, the capabilities of all assets must be exploited in the conduct of counterair operations: attacks by ground, airborne or air-mobile forces; air and ground attack and intelligence operations by SOF (including organized resistance activities); and armed helicopters" (15:1V-6). This statement establishes the doctrinal base for the use of forces under the control of the ground force commander to participate in DCA forward of the FLOT in support of the ground commanders' scheme of maneuver. This is important because it lays the doctrinal groundwork for offensive helicopter counterair operations which will be discussed later.

Defensive counterair operations as described in JCS Pub 26 are "...conducted primarily in reaction to enemy air offensive initiatives and include all measures and means designed to nullify or reduce the effectiveness of hostile air attacks against the joint force. The purpose of DCA operations is to provide a secure area from which all elements of the joint force can operate effectively" (15:V-1). An important point is that AIR DEFENSE is synonymous with DCA in JCS Pub 26 vernacular. With respect to armed helicopters

These aircraft will normally be employed throughout the theater integral to the maneuver operations of a land combined arms force. These operations may require air crews to engage enemy air or ground forces, especially enemy helicopters and battlefield air defenses, in air-to-air or air-to-ground combat to protect themselves and other elements of the land force. Such combat is normally engaged while executing the mission orders of the ground force commander to achieve assigned objectives of the land force, but in so doing compliments the theater counterair campaign throughout the full depth of the battlefield (15:V-8).

Within the context of air defense are active and passive measures. Passive measures are those measures required by all members of the joint force to provide the maximum protection for friendly assets and to complicate the enemy's targeting process. Active air defense is "...conducted using airborne and surface-based ESM and SIGINT and weapon systems, supported by secure and highly responsive communications, in order to detect, identify, intercept, and engage and destroy or track hostile or potential hostile airborne vehicles" (15:V-1).

Armed helicopters are discussed in detail in DCA operations. JCS Pub 26 states that

In DCA operations, air-to-air combat planning for armed helicopters must be netted into and coordinated with the maneuver commander's plan and scheme of maneuver. This allows armed helicopters to conduct air-to-air combat operations when the need arises, under the command of their parent organization, while accomplishing their primary mission. Units will be integrated into the air defense net to obtain information about friendly

air defense positions, current air threat information, weapons control status, and coverage areas (15:V-10).

This doctrinal statement has important command and control implications for Army Aviation which will be brought out later in this discussion.

Doctrine for theater counterair operations clearly expresses a joint responsibility to defeat the air threat within the theater and has placed an additional responsibility on the United States Army to develop an operational concept that articulates its contribution to the campaign. This joint guidance brings forth new concepts and challenges for the Army. Prior to the 80s, air defense of the ground force was the responsibility of the Air Defense Artillery branch of the Army. Army Aviation provided combat, combat support, and combat service support aircraft to the Army. Combat helicopters specifically contributed directly to the ground commander's available combat where and when the commander required such a force. The addition of a new mission of helicopter air-to-air combat required the Army to reexamine the role of armed helicopters in light of this new mission. Changes in the threat contributed to a need for an indepth study of air defense of ground forces.

Two studies, the Forward Area Air Defense (FAAD) Working

Group and the ADA Laydown, published their results in 1986. Both reports indicated that the Army needed to implement a combined arms approach to counterair and acknowledged that the effectiveness of enemy air exceeded the capability of Air Defense Artillery (16:18). The study indicated that air defense required more players than just the Air Defense Artillery community to defeat Soviet air capabilities particularly the Soviet armed helicopter threat. To further institutionalize the concept of combined arms air defense, Training and Doctrine Command (TRADOC) established seven primary functional areas that would contribute to air defense.. Aviation was now institutionalized as a full player in the counterair mission along with infantry, armor, artillery, air defense artillery, intelligence, electronic warfare, command, control and communications (16:18).

In late 1987, the final coordinating draft of the Operational Concept for Combined Arms Air Defense was distributed to functional proponents for final comment. The Operational Concept statement establishes a base document upon which proponents will develop doctrine, establish training, identify force structure requirements and base future material developments necessary to execute the doctrine (16:18). The remainder of this discussion will focus on the Operational Concept with emphasis on issues relating to Army Aviation.

What does an Operational Concept mean and what purpose does it serve? An operational concept for air defense describes the capabilities the Army requires to plan, coordinate, and execute the Army portion of the joint doctrine outlined in JCS Pub 26, within the doctrinal framework of Airland Battle Doctrine (FM 100-5). It serves as a guide to follow-on combat development efforts to implement that doctrine. It also establishes a conceptual linkage between the Forward Area Air Defense System (FAADS) and other command, control, communications and intelligence systems in the Army. More importantly, the concept provides a statement of how the Army has decided to use its assets to support the joint counterair doctrine and control those assets during deep, close, and rear operations (17:iii).

From a command and control perspective, the Operational Concept acknowledges that Army ground component commanders at corps level and below will control air defense assets to support his scheme of maneuver; to provide for freedom of maneuver, to protect critical command, control and intelligence assets, to sustain the battle, and to kill enemy air targets (17:7). This statement of command and control responsibilities is in concert with JCS Pub 26 and implies that Army Aviation at corps level and below will be under the control of the ground maneuver commander.

With respect to framework, The Army's conceptual statement uses the same terminology of offensive and defensive counterair operations to frame its air defense objectives in support of the counterair campaign as does JCS Pub 26. Defensive counterair operations are further subdivided into active and passive operations in the same manner outlined in JCS Pub 26. DCA captures the initiative to destroy or reduce the enemy's air power at the time and place which best supports the commander's intent while active DCA is a reaction to the enemy's initiative.

Offensive counterair resources available to the tactical ground commander are normally limited to organic tube artillery, rocket artillery, EW, aviation assets, specifically armed helicopters, and other systems made available to the commander from outside sources (17:11). The use of armed helicopters in DCA in practical terms is similar to cross FLDT operations or deep strikes using AH 64 Apache attack helicopters against air targets on the ground rather than armored targets. The importance of this doctrinal statement with respect to DCA is that the mission is acknowledged and is determined to be within the capabilities of attack helicopter forces.

Coordination of DCA is critically important. Assets from

theater under the control of the Air Component Commander (normally Air Force fixed wing assets or other fixed wing assets from other services as directed by the joint force commander) and tactical assets under the control of the Ground Component Commander at corps level and below must be coordinated to ensure unity of effort when attacking targets forward of the FLOT. The operational concept states that close coordination between the Tactical Air Control Center (TACC) and the Battlefield Control Element (BCE), in conjunction with a dialogue between the Air Component Commander (ACC) and the ground commander provides the mechanism for successful joint execution of offensive counterair operations (21:12). The TACC "...has the requisite knowledge, communications and capability to manage the offensive counterair effort. The BCE at the TACC has the Land Component Commander (LCC) priorities and guidance, and possesses the requisite knowledge of the battlefield situation to integrate Army capabilities with the offensive counterair effort" (17:12).

Control of assets conducting OCA at the tactical level must be accomplished at the control center responsible for integration of functions taking place on the battlefield. "At each tactical level, the command post controls the employment of maneuver and fire support forces, electronic combat systems, and aviation systems assigned to Air Defense tasks.

Army commanders execute DCA actions using organic systems and the supporting assets of other services. This is coordinated through the Fire Support Element (FSE) and with the coordination and liaison assistance of the Army BCE element within the TACC" (17:16).

Though DCA can be conducted at the tactical level within the limitations of the assets available to the ground component commander, the risks involved in penetrating the FLOT with armed helicopters must be weighed against the expected results. The armed helicopter force is a valuable maneuver force that can quickly influence the battle. Therefore, commitment to DCA is a critical decision, the results of which may weigh heavily on future battles if the armed helicopters suffer excessive losses. The end must justify the means. Offensive counterair operations can be accomplished by tactical forces, however, the preponderance of counterair operations in support of the ground commander's scheme of maneuver will most likely be defensive counterair operations.

Active defensive counterair operations (DCA) or more appropriately termed "Air Defense", are defensive actions taken to destroy attacking enemy aircraft. Active DCA requires that all members of the combined arms team contribute to air defense. "While the weapon systems of

combined arms members other than ADA are not optimized for the Air Defense role, they are capable of contributing to the attack of hostile aircraft when required" (17:16). Referring to the previous chapter on the threat, the Soviets have come to the same conclusion. Air superiority must be achieved if ground forces are to accomplish their objectives. Similarly, the Army is concerned about the impact of Soviet armed helicopters on friendly operations, particularly maneuver.

The Operational Concepts states that

The immediate threat to maneuver forces in the close operation is enemy ground and air systems, which can quickly deliver effective direct and indirect firepower on individual weapon systems and small tactical formations. The air threat is composed primarily of attack helicopters, close air support fixed wing aircraft, and drones. Highly mobile attack helicopters can effectively engage friendly forces from stand-off ranges well within enemy territory using evasive tactics and techniques and firepower (17:16).

To this point, the doctrinal framework for the conduct of counterair operations has been described and the Army's operational concept to contribute to the counterair campaign has been briefly discussed paying particular attention to Army Aviation as a key player. The final discussion will focus directly on the role Army Aviation intends to play in the counterair effort.

Army Aviation will play an important role in the counterair mission. As the Soviets continue to increase the

quantities of armed helicopters on the battlefield, there will be increased competition between armed helicopters for the limited air maneuver space in the vicinity of ground forces. This competition will inevitably result in chance engagements of helicopter forces. However, it cannot be forgotten that combat helicopters are first and foremost a maneuver force with inherent combat power that can quickly influence the battle. For this reason the terrain flight environment, essential to helicopter maneuver, must be controlled in order for combat helicopters to be effective.

Offensive counterair operations are within the capability of aviation assets. When OCA is conducted, air related targets are beyond the range or capability of corps artillery forces. "The primary aviation assets for conducting deep attacks in support of OCA operation are corps-level attack helicopter units in conjunction with EW and ground fires designed to suppress enemy air defense (SEAD)" (18:5). In terms of equipment, this force will consist of the AH-64 Apache and the OH-58C/D and there missions will be performed at night to increase survivability. The deep attack force will transit the threat zone of operations employing Aircraft Survivability Equipment (ASE) and night vision devices that permit high speed contour flight beneath the enemy air defense envelope (18:5).

Defensive counterair operations are described as purely reactive air combat characterized by aggressive action in order to create and maintain a favorable air situation (18:7). The importance of this statement is that it provides a framework for how armed helicopters will be employed on the battlefield. Armed helicopters will not support both the air-to-ground mission and the air-to-air mission concurrently but will be tasked by the ground maneuver commander to augment the active DCA effort to protect the force if the air threat will prevent the ground force from achieving its objectives (18:8). Further, aviation forces may become involved in air combat as a self defense measure. These statements imply that helicopters will have a defensive air-to-air capability that will allow them to conduct their primary mission and the air-to-air mission, or said differently, the helicopters will have a dual role capability rather than a single role capability on the battlefield.

Aviation forces, due to the proliferation of AD systems, will not normally execute sustained air combat operations along the FLOT. Attack and air cavalry units conducting reconnaissance, security, or antiarmor missions will plan for and conduct air combat first for self-defense, and secondly, to protect the ground-maneuver force. Additionally, Army utility helicopters and forward aerial artillery observers (FAAO) are armed with ATA missiles for the purpose of self-protection. During the course of close operations, these aircraft may be involved in air combat as an extension of the assigned mission in order to deny enemy efforts to

strip them away from the friendly maneuver force (18:8).

Active DCA, conducted in conjunction with rear operations, focuses on protection of the force. When armed helicopters are tasked to perform air defense missions to augment the air defense effort in rear operations, they are capable of intercepting heliborne forces and can actively seek out and destroy hostile aircraft over friendly territory. Armed helicopters can be used to protect high-threat areas where the enemy has eliminated the AD capability or where ground employment of AD is unsuitable because of the terrain (18:9). In other words, there is a dedicated armed helicopter force being used in an air defense role to defeat enemy helicopters that have penetrated the FLOT. These forces, however, will come from the current force structure which means that when forces are used primarily in the air defense role, they are not performing their primary mission on the battlefield.

The discussion in this chapter has provided an analysis of joint doctrine and the Army's combined arms air defense operational concept for air defense. It tracks the doctrine as it is articulated in JCS Pub 26 and how that doctrine is translated into an operational concept focusing on how Army Aviation fits as a player in the concept.

CHAPTER 5

ARMY AVIATION AND AIR COMBAT: THE FUTURE

The evolutionary development of Army Aviation is definitely gaining momentum. The relatively small number of light aircraft adjusting artillery fires in World War II evolved into a considerable aviation effort in Korea when the flexibility of the helicopter was put to good use for medical evacuation. During the Vietnam War the airmobility concept matured and the use of air cavalry and attack helicopters was integrated into a combined arms fighting force. The designation of Aviation Branch on 13 April, 1983, recognized Army Aviation as an equal partner of the Army's combined arms team.

The changes in aviation organizations, aviation employment techniques and helicopter technology have all resulted in a capability that only could have been imagined twenty years ago. The Army's doctrine is the thread that links Army Aviation to the combined arms team. In its description of doctrine, Field Manual 100-5, "Operations", it states that tactics, techniques, procedures, organizations, support structure, equipment and training must all be derived from doctrine (19:6). The four tenets of the Army's Airland Battle doctrine are identified in FM 100-5 as initiative, agility, depth, and synchronization.

Initiative means setting or changing the terms of

battle....Agility-the ability of friendly forces to act faster than the enemy-is the first prerequisite for seizing and holding the initiative....Depth is the extension of operations in space, time, and resources....Synchronization is the arrangement of battlefield activities in time, space and purpose to produce maximum relative combat power at the decisive point (19:14-17).

Certainly the inherent characteristics of modern aviation lend themselves to AirLand Battle doctrine.

Lieutenant General Robert W. RisCassi, Commander of the U.S. Army Combined Arms Center at Fort Leavenworth, Ks, writes in an article in U.S. Army Aviation Digest:

Of all the achievements of the last few years, the combat aviation brigade shows the greatest promise for allowing Army Aviation to be employed to its fullest capability on the air-land battlefield (20:5).

The Army has reorganized aviation organizations so that battalion size units are smaller and the leader to led ratio is more favorable. In addition, all active divisional aviation units are organized under an aviation brigade. The aviation brigades are organic to divisions. Also, Army Corps are authorized a separate corps aviation brigade (21:2).

In the same article, General RisCassi goes on to state that:

The aspect of Army Aviation that combined both mobility and firepower-the attack helicopter-offers

the greatest likelihood in using its revolutionary potential to add yet another dimension of maneuver to air-land battle....Air-land battle doctrine and the enhanced capabilities of the newer attack aircraft offer opportunities to employ attack helicopters to greater advantage. By using attack helicopters to; strike at enemy weakness wherever it may be found, to mass firepower quickly, to disperse before the enemy can react and to mass again for yet another attack, the commander now can cause the battle to become truly multidimensional (20:6).

The Army's newest attack helicopter, the AH-64 Apache, promises to be the attack helicopter that General Riscassi is referring to that has revolutionary potential. When Major General, Retired Ben L. Harrison entitled his article on the combat potential of the AH-64, "Awesome, Mean: Now What Do We Do with It?", he made the point that the Apache has a lot to contribute and the Army has a lot to learn about its potential contributions. The flight performance, visionics, sensors avionics systems, firepower, maintainability, and deployability all add up to make the AH-64 the attack helicopter that will change land warfare. General Harrison warns his readers of the dangers of ignoring history.

We should remind ourselves that both the U.S. Army and the British army had organized and tested large-scale armored formations in the early 1930s and found them tremendously effective. We turned our back on our tactical evaluations, disassembled the armor organizations and assigned the tanks piecemeal to infantry units. Only the Germans saw clearly enough to capitalize on the potential of a new weapon system. The Apache may be "even more revolutionary," but it will not reach its full potential until we (Infantry and Armor, not just Aviation) do something about it (22:10).

Dark overcast skies are ideal; visibility obscuration is desired; the night is an ally; and close means being within three miles of the target are examples of how the role of Army Aviation has changed and the Apache has changed it.

The Soviets recognize the potential of the attack helicopter and air assault forces on a future battlefield and are structuring formidable threat forces. Major General Parker, Commander of the U.S. Army Aviation Center, writes of his vision for the Army's new Light Helicopter Family, LHX, in an article published in U.S. Army Digest. In the article, General Parker describes the threat and the need for an air-to-air combat capability in straight forward language.

These future threat forces will be formidable. Air-to-air combat will be decisive. There will be a need to strike deep into enemy territory to disrupt his attack and to destroy his logistical support lines. We must have the capability to shift combat rapidly to any part of the battlefield on very short notice. We will be fighting against a staggering number of enemy air defense weapons (23:42).

The Army's new scout/attack helicopter presently referred to as the Light Helicopter Experimental (LHX) will incorporate technology with new doctrine to address the growing air-to-air threat. The LHX will replace a portion of the present helicopter fleet.

The sensors, processors, and armament of LHX will depend on its ultimate missions, and those missions

have changed in the last five years. Air-to-air combat was originally a secondary role, purely for self-defence. But the large and growing Hind, Hukum, and Havoc force has brought counter-air capability near the top of the missions list, and US Army air defence planners now see LHX as an extension of the multi-layered Forward Area Air Defence System, tied to airborne and ground based sensors to protect ground forces as well (24:42).

The LHX will operate against a sophisticated threat, using a world-wide navigation capability, and it will communicate with secure and electromagnetic interference hardened avionics. It will be self-deployable to Europe and will be able to conduct deep attack missions during darkness. The future Army light helicopter will have a designed air-to-air combat capability (23:4).

The future commitment of Army Aviation to the ground battle is as strong as it has been in the past. The Apache is designed to perform the same mission as the Cobra. Lieutenant General RisCassi uses the word revolutionary as does General Harrison when writing about the AH-64, but the aircraft is only revolutionary in its technology, employment techniques, and capability. The mission for which the Apache was designed and fielded is not revolutionary, but rather a mission that has been performed by Army helicopters since the Vietnam War. The designed capability of the LHX represents a radical departure from the Army Aviation's traditional missions.

CHAPTER 6

WHAT DOES ALL THIS MEAN?

The discussion thus far has provided a historical view of Army Aviation and reinforces the point that Army Aviation since its inception, has inextricably been a part of ground maneuver. Though the medium is a helicopter operating in the third dimension, there should be no question that Army Aviation is part of ground combat power. Aviation commanders and ground commanders share a common goal--success in battle and defeat of the enemy. Just as the AH1 Cobra provided support to the ground commander in Vietnam, now the AH64 Apache, capitalizing on technology and increased firepower, will provide ground commanders with integrated support on the next battlefield.

The AH64 and its complimentary OH58D AHIP, as a team, provide the ground commander with a maneuver force that can significantly influence the outcome of battles through the introduction of combat power where and when the commander needs it. The capability to influence battles at night with armed helicopters is a dimension never before available. It is fair to say that fighting along side the ground soldier is Army Aviation's history and its future. Yet, a change has taken place over the last decade that has caused traditional roles and missions to be accomplished in a revolutionary

manner.

The Soviets have introduced significant numbers of Hind D armed helicopters into the combat power equation; have upgraded the Hind with an air-to-air capability; and are about to bring into the force structure the Havoc and the Hocus which will have a significantly improved air-to-air capability. In fact, there is considerable speculation that the Hocus's primary mission on the battlefield will be air combat. The results of these events have caused traditional roles and missions to be expanded in order to counter the helicopter threat. "With the ever-increasing number of helicopters expected on the modern battlefield of tomorrow, air-to-air engagements are destined to become a reality. Consequently, it is imperative for Army Aviation to possess the capability of overcoming this perceived threat" (25:1).

From previous discussions it is clear that the Soviets have taken the initiative with the issue of helicopter air combat by introducing an air-to-air capability into their armed helicopter force. This significant change in force capability requires special attention since it also compliments their combined arms strategy to defeat the NATO helicopter threat. The introduction of the AH64 Apache, with its laser guided hellfire missiles capable of destroying armor vehicles at significant stand-off ranges, would cause

any reasonable adversary to consider all options to defeat such a devastating force. Soviet helicopters must not be allowed to influence the ground scheme of maneuver or reduce the options available to the ground commander to achieve his objectives.

The price that is paid for combined arms air defense is that the commander has limited aviation resources with which to implement alternatives because no additional force structure has been added to perform this new mission. This is the reality of constrained resources; but more importantly, the attack helicopter team with the AH64 Apache and the OH58D conceivably will be diverted from its original mission of destroying armored vehicles, to a role of air defense or protection of the force. The depth and breath of the costs of CAAD have yet to be fully developed since it is only at the conceptual phase of implementation.

This paper has examined the threat, the evolution of Army Aviation, the doctrinal and operational concepts of Army helicopter air-to-air combat, and the implication of the effects of future Army systems on the ground war. The conclusions are that Army Aviation has historically been totally integrated into fighting and supporting the ground war and there is no trend that will distort Army Aviation's focus on its mission.

Aviation assets have traditionally been and will continue to be organic to divisions and corps. The aviation brigade headquarters will permit the increased effectiveness of aviation assets. The mobility and firepower, that has in the past been characteristic of aviation, are on the threshold of being redefined as new technologies permit Army Aviation to better compliment AirLand Battle doctrine. In addition, the helicopter's air-to-air capability will compliment the Army's counterair mission, not dominate it. Army Aviation will continue to be an important member of the combined arms team, playing its part in the accomplishment of the Army's mission. With the exception of air-to-air combat, there are no future trends that are inconsistent with the historical role that aviation has played within the U.S. Army. To anticipate the use of Army Aviation in air-to-air combat and as a component of the counterair calculus may be consistent with the Army's mission, and may be the most effective way to address the threat; however, it is historically inconsistent with the role of Army Aviation.

If deterrence fails, then the mission of the Army is to fight and win across the spectrum of conflict anywhere. There is no requirement to validate history or even doctrine. The focus in the Army is on defeating the enemy. The development of a helicopter air-to-air combat capability is

driven by the threat. Army Aviation is required to fight air-to-air in order to contribute its share as a member of the combined arms team. In addition, it is important to recognize that Army Aviation is required to become part of the "AIR" of AirLand Battle doctrine. Aviation within the Army continues to have its roots in the mud with the ground soldier and the evidence supports the conclusion that the drummer that Aviation Branch is hearing is not out of the past, but rather a sound of the future.

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